AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT		1. CONTRACT ID CODE	PAGE OF PAGES
2. AMENDMENT/MODIFICATION NO. PR-NC-02-10696/0001	3. EFFECTIVE DATE 02/27/03	4. REQUISITION/PURCHASE REQ. NO. PR-NC-02-10696	5. PROJECT NO. (If applicable)

6. ISSUED BY CODE	7. ADMINISTERED BY (If other than item 6) CODE
Environmental Protection Agency RTP Procurement Operations Division (D143-01) 4930 Old Page Road Research Triangle Park, NC 27709	Not Applicable.

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)	(✓)	9A. AMENDMENT OF SOLICITATION NO.
To All Offerors/Bidders.		PR-NC-02-10696
	✓	9B. DATED (SEE ITEM 11) 02/07/03
		10A. MODIFICATION OF CONTRACT/ORDER NO.
		10B. DATED (SEE ITEM 13)
CODE FACILITY CODE		

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

[X] The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers [ ] is extended, [X] is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing Items 8 and 15, and returning 1 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

(✓)	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	c. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor [ ] is not, [ ] is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) ROBERT D. FLOWERS	
15B. CONTRACTOR/OFFEROR (Signature of person authorized to sign)	15C DATE SIGNED	16B. UNITED STATES OF AMERICA (Signature of Contracting Officer)	16C. DATE SIGNED

NSN 7540-01-152-8070
PREVIOUS EDITION UNUSABLE

30-105

STANDARD FORM 30 (REV 10-83)
Prescribed by GSA
FAR (48 CFR) 52.243

AMENDMENTS TO THE SOLICITATION

Questions and Answers

Proposals are due March 10, 2003 at 3:30 p.m.

1. **Question:** Is a "sorbent trap" for semivolatile organics by GC/MS considered to a separate "billable" sample? [*page 1-12 of 15 in "SOW" Section 7b*] .

   Answer: Yes.

2. **Question:** What is the "preferred" electronic format for the data, especially in view of the fact that a new contractor will need to take over immediately with minimal disruption in data flow. [*Page 2-4 of 5 in "SOW" Section 8*]

   Answer: The data report format shall be selected by the contractor to be consistent with their proposed data management system architecture.

3. **Question:** How is the "third party protocol validation" accomplished? [Page 5-2 of 8 in *Attachment #1 to the "SOW" Item 4b*]

   Answer: Validation shall be accomplished through the use of methods and SOPs published by the EPA/Montgomery QA Laboratory as Referenced in this RFP.

4. **Question:** Are "reanalyses of previous samples" considered to be separate billable samples and at what frequency are they to be preformed? [*same reference as #3 above and also in Page 2-4 of 5 in "SOW" Section 3*]

   Answer: All validation costs, whether using third party protocols and/or reanalyses are not separate billable samples but are to be considered an integral part of the offeror's QA program. The offeror shall propose their recommended frequency.

5. **Question:** What is the definition of an "analytical sample"? [*Page 5-4 of 8 in Attachment #1 to the "SOW" Item 5.*]

   Answer: The term analytical sample refers to a discreet analysis which the offeror shall use to determine their level of additional analyses for their quality control program.

6. **Question:** Are reanalyses due to dilution of OC/EC samples considered to be separate billable samples? [*Per OC/EC SOP*]

   Answer: No.

7. **Question:** How many archived samples collected during the period from January 2002 through July 2003 will be transferred to the custody of a new contractor for storage? [*Page 1-15 of 15 in the "SOW" Section 10a*]

Answer: It is anticipated that approximately 12,000 samples, which consist of 24,000 filters in small cassettes and 12,000 10cc vials of extract solution will be collected during the period from January 2003 through July 2003, which will be transferred to the custody of the new contractor for storage. The exact number of samples and sites will be designated by delivery order. Also, offerors should note the maximum number of sample quantities in Section B.1 for the Base Period.

8. **Question:** What are "sample processing options"? [*Page 2-4 of 5 in the "SOW" Section 2*]

   Answer: These sample processing data shall include all information which would characterize the manner in which the samples were analyzed including, but not limited to, specific instrument, batch, associated QA, and any alterations made to the sample by laboratory personnel.

9. **Question:** Are there denuders other than XAD-4 that would need to be prepared such as charcoal impregnated filter (CIF) denuders?

   Answer: No

10. **Question:** Will the existing sampler parts (cartridges, denuders, etc), coolers and shipping containers be available for use by a new contractor?

    Answer: The contractor is not responsible for purchasing sampler parts. Offerors should indicate in their proposal how many modules/cassettes are needed from the states to meet your proposed shipping schedules and logistical plan. The offeror must describe and provide the coolers, shipping containers, and packaging proposed for this program.

11. **Question:** The current contract is scheduled to end on July 8. Would the new contract be in place early enough to permit a new contractor to begin delivering filters, denuders, etc. on July 9? Does the old contractor complete the analyses of filters sent near the end of the current contract? When will be their last shipment date?

    Answer: The last shipment is anticipated to be sent by the current contractor on July 8th. The current contractor will complete the analyses of all filters shipped on or prior to July 8, 2003. Offerors should address a plan with a detailed schedule stating all assumptions in their proposal to assure minimum disruption to the analytical laboratory support for the speciation network. The technical evaluation criterion **I. Technical Approach** has been revised to specifically address the evaluation of the transition plan:

I. Technical Approach 40 points

Demonstrated technical approach to the Statement of Work (SOW). This should include a statement of the methods the offeror plans to utilize in the performance of SOW requirements in meeting program objectives. The offeror's technical approach should be specific, detailed, and complete. It should

clearly and fully demonstrate that the offeror understands the requirements for the technical problems inherent in the end objectives involved, together with valid and practical solutions for the problems. **This includes the offeror's plans to to assure minimum disruption to the analytical laboratory support for the speciation network. The offeror must identify and discuss the resolution of all problems that the offeror foresees.**

Simply stating that you understand and will comply with the statement of work, or paraphrasing the statement of work or parts thereof, is considered inadequate. For example, standard operating procedures (SOPs) referenced in the technical proposal must be included as an Appendix to the technical proposal. Failure to provide copies of these SOPs shall be negatively reflected in the evaluation of this criteria. It is recognized that all of the technical factors cannot be detailed in advance, but the technical proposal must contain sufficient detail as to how offerors propose to comply with the work statement, including a full explanation of the techniques and procedures the offeror proposes to follow. Data previously submitted and incorporated in the technical proposal by reference cannot be considered. The following are considered to be of equal importance.

(1) Laboratory Analysis

a. Demonstrated adequacy of facilities and equipment for performing required analyses in accordance with the requirements of the statement of work **and minimum disruption during the transition phase, if required.** Similar information must be included for any proposed subcontractors.

(2) Data Handling

a. Demonstrated adequacy of procedures for data reduction and validation (mass determination, corrections for artifacts, data summary reports) and adequacy of proposed approach for data base management, **including minimum disruption during the transition phase, if required.**

12. **Question:** Is there equipment/analytical instrumentation purchased under the existing contract that would be available to the new contractor? If so, what would the timing be so that there is no interruption of analytical services?

Answer: Excluding existing sampler parts, there are no other equipment or analytical instrumentation available for performance of the contract.

13. **Question:** Can a wavelength dispersive X-ray fluorescence spectroscopy (WDXRF) system be used for elemental analysis if it can be shown to be non-destructive and meets performance evaluation (PE) requirements?

Answer: No.

14. **Question:** On page E-2 of 4, it is stated that a Joint Quality Management Plan/Quality Assurance Project Plan (QAPP) be provided as part of Pre-Award Documentation. On page M-3 of 4 in the Evaluation Factors for Award section, it is stated that the technical proposal should include an outline of the QAPP prepared in accordance with EPA

A/R-5. Is only an outline of the QAPP required at with the proposal?

Answer: A detailed, substantive outline of the QAPP is required with the proposal. The quality and depth of that outline will be assessed in accordance with the technical evaluation criteria.

15. **Question:** Is there a defined set of Data Quality Objectives (DQO) for this project?

Answer: EPA has not established final DQOs within the speciation network for routine operation. During the initial first years of network implementation, EPA has been assessing sampler performance, laboratory performance, and operational logistics. These assessments are conducted using the strategy outlined in the following document:

http://www.epa.gov/ttn/amtic/files/ambient/pm25/spec/finlqmp.pdf

Upon refinement of the network and completion of these assessments EPA will then establish routine DQOs for the final network.

16. **Question:** It seems that there has been a substantial amount of documentation developed under this contract. Can the Government provide copies of project specific SOPs, QAPP, and an example of all deliverables required under this contract?

Answer: All documentation that is available to provide to offerors is listed in Provision L.18 entitled "Information Regarding Locating Relevant Documents on the Internet."

17. **Question:** Can the Government provide the current cost per sample type as listed in Section B of the soliciation?

Answer: This procurement is a follow-on to contract 68D99013 with RTI. The contract has a maximum potential value of $12,290,680 with a period of performance which started July 8, 1999 through July 7, 2003.

18. The RFP states in section G.7 that “Filters will be provided as appropriate for analysis as indicated in each delivery/task order.” The Statement of Work, however, states that the contractor’s responsibilities shall include, “purchase and prepare all suitable filter media for each speciation sampling system.”

Question: Will the filter media be provided by the Government, or will the contractor be required to purchase filters?

Answer: The contractor will be required to purchase filters. The Statement of Work requires that “The contractor shall provide the following: 1. Purchase and presampling treatment of all required filter media.”

19. The Statement of Work Section 7, Semi-volatile organic aerosol analysis, states that multiple filters may be combined for analysis.

Question: Are there a specific number of filters that may be combined, or is there a maximum number that may be combined? May we assume that Section B quantities would be for 30 "composite" samples?

Answer: We cannot predict the exact number of filters that will need to be composited in order to get adequate sensitivity for the analytical technique proposed. This will be a function of the amount of particulate organic material deposited on each 46.2-mm filter (organic mass) and the sensitivity or method detection limit of the proposed analytical method and extraction procedures. The offeror shall propose the number of filters that are needed to obtain enough material for the specific procedure they propose.

20. Attachment 1, Section 10, Filter Archiving, states that samples are to be stored at a temperature of 0˚F (zero Fahrenheit).

Question: Is this the correct storage temperature for all samples and extracts or for the quartz filters only?

Answer: The Statement of Work (Page 1-15 of 15), paragraph 10 a), last sentence is revised to read: "The facility shall be designed to store quartz filters at -15° C. or below, Teflon and nylon filter extracts at 0°C to 4° C. and shall be serviced with back up power generation capability.

21. Attachment 9 provides a list of general sampler locations.

Question: Can a list of shipping addresses be provided to allow for an accurate estimate of shipping charges? Can EPA provide information on the current shipping carrier and the rates they are providing for a Government contract? In addition, can EPA provide a historical perspective on the shipping costs incurred under the existing contract?

Answer: The Statement of Work is revised to add the following paragraph:

11. EPA will establish and fund a Federal Express shipping account which will be utilized by the contractor for sample shipments to and from the field. For any damage occurring in the field, it will be the responsibility of the state agency for repairing or replacing any damaged denuder tubes. For any damage occurring in the lab, it will be the responsibility of the contractor for repairing or replacing any damaged denuder tubes. Any breakage occurring during shipping will be resolved by the contractor with the shipping company."

22. Attachment 9 contains a table of analyses by sampler type. This table suggests that the R&P FRM sampler, which is a single filter sampler, is being used to collect all sample types simultaneously.

Question: Can EPA give more specific details as to how these samplers are configured and operated?

Answer: The speciation sites using R&P FRM samplers use two samplers, one equipped with a Teflon filter for mass, ions, elements; and a second sampler equipped with a quartz filter for OC/EC.

23. The Scope of Work indicates that the IMPROVE sampler is one of the sampler types supported under this contract. Attachment 9 shows no IMPROVE samplers currently in the program.

Question: Will there be any IMPROVE samplers supported under this contract? If so, how many are expected to be operated?

Answer: It is anticipated that there may be some IMPROVE samplers supported by the contract. However, the exact number is unknown.

24. There is an apparent discrepancy between Section G.1(c) which describes LOE cost-reimbursable or time & materials type work orders and the remainder of the contract sections where an IDIQ/FFP contract type is specified.

Question: Please confirm the work orders will be firm fixed price based upon the quantities requested in the order multiplied by the prices in the Schedule.

Answer: Yes. The delivery/task orders will be fixed price. The clause G.1 "Ordering by Designated Ordering Officers" has been deleted and a new clause G.10 "Ordering by Designated Ordering Officers" as been added as follows:

G.10 ORDERING BY DESIGNATED ORDERING OFFICERS

(a) The Government will order any supplies and services to be furnished under this contract by issuing delivery orders on Optional Form 347, or an agency prescribed form, from the effective date of the contract through the expiration date of the contract. In addition to the Contracting Officer, the following individuals are authorized ordering officers:

To Be Identified at Contract Award

(b) A Standard Form 30 will be the method of amending delivery orders.

(c) If the Contractor considers the estimated labor hours or specified work completion date to be unreasonable, he/she shall promptly notify the Ordering Officer and Contracting Officer in writing within 10 calendar days, stating why the estimated labor hours or specified completion date is considered unreasonable.

25. **Question:** Please confirm that Facilities Capital Cost of Money will be an allowable cost under the contract, and that if the successful offeror proposes this cost element, the clause 52.215-16 “Facilities Capital Cost of Money” will be substituted for 52.215-17

Answer: FAR 52.215-17 "Facilities Capital Cost of Money" clause is included in section L of the solicitation and will be an allowable cost

under the contract. If the successful offeror proposed this cost element, the clause 52.215-16 "Facilities Capital Cost of Money" will be deleted from any resulting contract.

26. There is no direction in Section L-"Instructions, Conditions, and Notices to Offerors" to submit the technical proposal and the cost proposal in separate volumes.

Question: Shall the cost and technical proposals be submitted in two volumes or as separate sections in one volume?

Answer: The cost and technical proposals shall be separated into two separate volumes.

27. There are no specific requirements in Section L for the content of the cost proposal.

Question: What information other than that listed below is required to be in the cost proposal?

a. Schedule B with unit prices and extensions completed;

b. Section K. "Representations and Certifications" for the prime and its major subcontractors, including supporting information requested as part of the section.

c. Section L.7. "General Financial and Organizational Information" for prime only including supporting information requested as part of the section.

d. Subcontracting Program Plan for Utilization of Small Business and Small Disadvantaged Business".

28. The Statement of Work, page 1-14, lists "four available speciation samplers" including the SASS, IMPROVE, RAAS and URG MASS. Attachment 9 contains a table of analyses by sampler type which does not include the IMPROVE but does list what appears to be R&P samplers (RPSPEC).

Question: Can EPA clarify the sampler types currently and potentially being used, and the number of each?

Answer: The description of the R&P Chemcomb Model 2300 was erroneously left out of the Statement of Work (See question #33). It is anticipated that there may be some IMPROVE samplers supported under this contract in the future. However, the exact number is unknown (See question #23).

29. **Question:** Can EPA make available one of each sampler "module" type for physical examination?

    Answer: No. References were given in the solicitation to view the schematics for the samplers.

30. **Question:** Please explain the basis EPA used to determine the value of the penalties in Attachment 4.

    Answer: The overall success of the speciation laboratory program depends on the timely performance of analyses and entering resulting data into AQS.

31. **Question:** Please clarify from what event(s) lateness is measured.

    Answer: For sample analysis and reporting task area, the late penalty begins the day after the data was due. Note: Contractors have a full 30 days to analyze and report all samples received during the reporting period. Monthly reports shall contain data for samples received by the contractor 30 to 59 days prior to the monthly report date.

    For the electronic data entry into AQS task, the late penalty begins the day after the data was due into AQS as required by paragraph 8 of the Reports of Work.

    The Quality Assurance Survellance Plan has been modified.

32. **Question:** Page G-11 of 11. Partial payment. How will prior approval by the Delivery/Task Order Project Officer be granted? Also, if the contractor is responsible for paying shipping charges, how will these be reimbursed?

    Answer: If a sample is not able to be analyzed for whatever reason, the contractor should notify the Contracting Officer and Project Officer. After notification, the contractor can submit an invoice for the partial payment. The contractor is not responsible for paying shipping charges. The Statement of Work has been modified appropriately.

33. **Question:** Statement of Work, Section I: Is the R&P Chemcomb Model 2300 Speciation Sampling Cartridge included in the network? If so, a description of it was omitted from the solicitation.

    Answer: The description of the R&P Chemcomb Model 2300 was erroneously left out of the Statement of Work. The following description is added to I. (f).

" (f) Rupprecht & Patashnick (R&P) Partisol 2300 Speciation Sampler

The Model 2300 speciation sampler consists of 12 channels that permits up to four sampling trains to be active at one time. All four concurrent channels may be set to operate at up to 16.7 L/min. Channels can be programmed in groups of 4, 3, 2, or 1 to address a range of applications.

This sampler incorporates the ChemCombTM denuder tube/filter pack cartridges. This device is a gas/PM collection of single-module design. The ChemComb hardware can be configured to collect gases on a denuder and capture particulate-related species on one or more 47-mm filters. The ChemComb contains a keyhole PM2.5 impactor, a honeycomb denuder (if needed) and four stages for sampling on filters. Each cartridge can be assembled in various configurations. For the routine speciation trends program, the suggested configuration incorporates one cartridge with a Teflon filter for mass and trace elements; one with a denuder followed by a nylon filter for particulate nitrate and ions; and one with a quartz filter for carbon.

An active volumetric flow control system maintains a constant volumetric flow in each of the sampler's four flow controllers at user-defined flow rates. A microprocessor constantly adjusts the set point of the mass flow controllers in accordance with the latest measurement of ambient temperature and pressure from the instrument's sensors."

34. **Question**: Statement of Work, Section I: Each of the samplers mentioned in the proposal use sampling cassettes or modules. Are the filters to be loaded into these by EPA or monitoring site personnel, or is the contractor responsible for cleaning, assembly (including loading filters), disassembly, and handling of the cassettes or modules as under the current contract? Will EPA provide all sampling modules, if used?

    Answer: The contractor is responsible for cleaning, assembly, etc. The states will provide all sampling modules.

35. **Question**: Statement of Work, page 1-12: The list of target organic compounds for quantification by GC/MS is lacking several important molecular markers. For example, levoglucosan, which is a wood smoke marker, and cholesterol, which is a meat cooking marker. Can the referenced method (i.e. Schauer et al., 1996) be modified to ensure that these important organic compounds are monitored?

    Answer: Yes, additions, but no deletions to the target list can be proposed.

36. **Question**: Statement of Work, page 1-15: Will the contractor be responsible for sending archived samples back to individual states/local agencies or directly back to EPA? Who will be responsible for paying for the shipping of archived samples?

    Answer: The contractor shall be responsible for sending archived samples back to individual states/local agencies, but only as requested by those agencies. Shipping costs will be payed by EPA.

37. **Question**: Statement of Work, page 1-15: Archiving 10a indicates that the contractor shall store filters and extract solutions for the duration of the contract, which is up to five years. However, 10c states that the contractor shall provide storage and archival of all sample extracts and filter media for a period of up to six months following sample analyses and up to five years for filters. How long

should the extract solutions be stored after sample analysis? Please clarify the starting dates of archived samples due to wrong dates in 10a.

Answer: The SOW has been modified as follows:

10. Filter Archiving. EPA is in the process of analyzing the storage and archive needs of the speciation network.

a) It is anticipated that the Contractor shall store all filters and extract solutions that contain filters from the Speciation Trends Network (STN) and the SLAMs speciation network for the duration of the contract. Also, the contractor shall store all filters from the STN and SLAMS temporarily archived under Contract 68-D-99-013 for the period January 2003 through July 2003. However, the specific sites will be designated by delivery order. The facility shall be designed to store quartz filters at -15°C or below and teflon and nylon filter extracts at 0°C to 4°C and shall be serviced with back up power generation capability.

b) The contractor shall provide and operate a cataloging and physical storage system to facilitate rapid and accurate retrieval of filters upon request by EPA. EPA expects a computerized inventory system that may be transferred to EPA or to another curator at the conclusion of the contract. Consequently it should be designed and programmed with commercially available, upgradable and supportable software, e.g. Microsoft Excel. EPA will inspect and audit the inventory and the facility twice per year.

38. **a) Question**: Section III, Program Structure, second paragraph: Will the current sequence of reporting data first to the States (for their review and possible revision) and then uploading the revised data to the AQS remain the same under the new contract?

Answer: Yes Attachment 7 shows that data are to be approved by a state before posting to AIRS.

b) Question: What should the contractor do if no response is received from the state within the 45-day time period specified within the contract?

Answer: The contractor is authorized to post the data to AQS after the 45-day review period provided no response was received from the state agency.

39. **Question**: The requirements to report data within "30 days of sample receipt" and to report data "monthly" appear to be inconsistent and require clarification. Will the contractor have a full 30 days to analyze and report all samples received during the "reporting period?" If so, monthly reports will have to contain data for samples received by the contractor 30 to 59 days prior to the monthly report date. Please confirm.

Answer: The contractor will have a full 30 days to analyze and report all samples received during the monthly reporting period.

40. **Question:** Will the contractor be responsible for replacing worn and/or defective module parts? If so, will additional funding be provided for the parts and labor?

Answer: The contractor is not responsible for replacing worn and/or defective module parts.

41. **Question:** Who is responsible for creating, maintaining, and/or deactivating AIRS monitor records for each of the over 60 data items per monitor (i.e., monitor - parameter pairs) for any sites added/deleted during the contract period?

Answer: The Contractor shall be responsible.

42. Attachment 4 contains two penalty provisions relating to 1) reporting and 2) entering the data into AQS. The penalties provide for a deduction of 20% of the line item price for every 10 calendar days late. Please clarify. Specifically,

a) Question: To the extent this deduction is intended as a negative performance-based incentive, what degree of discussion will be permitted during source selection to ensure that the incentive structure is closely tied to the value of the service lost (i.e. EPA's damages) and to ensure it will result in accomplishing the desired result?

Answer: The EPA intends to award this contract without discussions with offerors. Any suggested changes to the solicitation, including performance incentives, should be provided to this office prior to the RFP closing date and will be considered, as appropriate. However, in the case of the current incentive/disincentive amounts, the EPA has determined that the values will effectively accomplish the Government's requirements.

b) Question: There is significant variation in the process times for the CLINs. For example, organic, elemental and total carbon (IMPROVE) and semi-volatile organic aerosol analysis require significant analysis time. Do the penalties apply to all line items equally?

Answer: Yes.

c) Question: What is the maximum deduction?

Answer: 100%

d) Question: Has EPA considered positive incentives to offset the down-side which must be factored into the contractor's financial risk assessment?

Answer: Positive incentive will be that contractor's will receive a positive performance evaluation.

e) Question: What procedures will be in place to administer and monitor the penalty for effectiveness and settle disputes?

Answer: When a late delivery is made, the contractor will be notified that the penalty will begin.

f) Question: Is it EPA's intention to assess double penalties against the line item if a late report also leads to late entry into AQS?

Answer: The Quality Assurance Surveillance Plan has been revised so that the contractor will not be double penalized.

g) Question: Please clarify the Performance Standard for Task Area "Electronic Data Entry into AQS" by providing the precise time frame for performance. Attachment 7 is unclear.

Answer: The Quality Assurance Surveillance Plan has been revised to clarify.

43. **Question:** Will EPA consider decreasing the 45-day period provided to the states for data review in order to provide the Contractor with additional time for cleaning, preparation , sample analysis, data quality review and reporting? This would mitigate the negative effect the 20% timeliness penalty could have on data quality.

Answer: No.

44. **Question:** Are all filters and extracts to be archived at "0°F" as stated in 10a and also in the Table in the Quality Assurance Surveillance Plan Page 4-3 of 4? In the current program, quartz filters are archived at -15° C. or below. Teflon and nylon filter extracts are archived at 0°C to 4° C.

Answer: The Statement of Work and Table in the Quality Assurance Surveillance Plan have been revised and reflect the temperatures used in the current program (See question #20)

45. **Question:** With respect to item 4 under Data Reduction and Reporting in "Attachment 2, Reports of Work: Please clarify exactly which components of total carbon are to be reported to AIRS for (1) the STN method and (2) the IMPROVE method.

Answer: Refer to the SOPs provided as reference to the SOW: For the STN method: OC,EC, TC and the fractions OC1, OC2, OC3, OC4, and EC are to be reported to AIRS. In addition, uncertainties associated with each measurement are to be reported if AIRS allows. For the IMPROVE method: The fractions of carbon for IMPROVE are to be determined exactly as stated in the SOP. OC, EC, TC and the fractions OC1, OC2, OC3, OC4, POC (pyrolyzed organic carbon), EC1, EC2, EC3 are to be reported to AIRS along with the uncertainty associated with each measurement to the extent that AIRS allows.

46. **Question:** For the OC/EC analysis by the STN method, must the continuing

calibration verification (CCV) standard be run after every ten sample punches as indicated in Section 16.3 of NAREL's SOP or will monitoring of the internal standard injection at the end of each analysis (as indicated in Section 21.6 of NAREL's SOP) be sufficient to ensure stable operation of the system?

Answer: The NAREL SOP is to be followed exactly as written.

CHANGES TO CONTRACT

1. The Section B clause entitled "FIXED PRICES--INDEFINITE DELIVERY/INDEFINITE QUANTITY CONTRACT (EP 52.216-135) (APR 1984)" has been modified. The text is as follows:

The following fixed rates shall apply for payment purposes for the duration of the contract:

BASE PERIOD: JULY 8, 2003 TO JULY 7, 2004

BASE Period Item	Item Description	Unit Price	Minimum Sample Quantity	Maximum Sample Quantity	Total Price (Unit Price X Max. Qty)
0001-1	PM 2.5 Gravimetric Mass	$_____	2,200	22,000	$_____
0001-2	Elemental Analysis by EDXRF	$_____	2,200	22,000	$_____
0001-3	Sulfate Analysis	$_____	2,200	22,000	$_____
0001-4	Nitrate Analysis	$_____	2,200	22,000	$_____
0001-5	Ammonium, and water-soluble sodium and potassium	$_____	2,200	22,000	$_____
0001-6a	Organic, elemental, and total carbon (STN)	$_____	2,200	22,000	$_____
0001-6b	Organic, elemental, and total carbon (IMPROVE)	$_____	2,200	22,000	$_____
0001-7	Semi-volatile organic aerosol analysis	$_____	3	30	$_____
0001-8a	Microscopic Analysis	$_____	1	15	$_____
0001-8b	Electron Microscopic Analysis	$_____	1	15	$_____
0001-9	Organic Denuder Refurbishment	$_____	5	50	$_____
0001-10	Nitric Acid Denuder Refurbishment	$_____	150	1,500	$_____
0001-11	Sodium Carbonate Denuder Refurbishment	$_____	300	3,000	$_____
0001-12	5 Year Archive of Samples	$_____	2,360	**34,000**	$_____

OPTION PERIOD I: JULY 8, 2004 TO JULY 7, 2005

Option Period I Item	Item Description	Unit Price	Minimum Sample Quantity	Maximum Sample Quantity	Total Price (Unit Price X Max. Qty)
0002-1	PM 2.5 Gravimetric Mass	$_____	2,200	22,000	$_____
0002-2	Elemental Analysis by EDXRF	$_____	2,200	22,000	$_____
0002-3	Sulfate Analysis	$_____	2,200	22,000	$_____
0002-4	Nitrate Analysis	$_____	2,200	22,000	$_____
0002-5	Ammonium, and water-soluble sodium and potassium	$_____	2,200	22,000	$_____
0002-6a	Organic, elemental, and total carbon (STN)	$_____	2,200	22,000	$_____
0002-6b	Organic, elemental, and total carbon (IMPROVE)	$_____	2,200	22,000	$_____
0002-7	Semi-volatile organic aerosol analysis	$_____	3	30	$_____

0002-8a	Microscopic Analysis	$_____	1	15	$_____
0002-8b	Electron Microscopic Analysis	$_____	1	15	$_____
0002-9	Organic Denuder Refurbishment	$_____	5	50	$_____
0002-10	Nitric Acid Denuder Refurbishment	$_____	150	1,500	$_____
0002-11	Sodium Carbonate Denuder Refurbishment	$_____	300	3,000	$_____
0002-12	5 Year Archive of Samples	$_____	2,360	23,600	$_____

OPTION PERIOD II: JULY 8, 2005 TO JULY 7, 2006

Option Period II Item	Item Description	Unit Price	Minimum Sample Quantity	Maximum Sample Quantity	Total Price (Unit Price X Max. Qty)
0003-1	PM 2.5 Gravimetric Mass	$_____	2,200	22,000	$_____
0003-2	Elemental Analysis by EDXRF	$_____	2,200	22,000	$_____
0003-3	Sulfate Analysis	$_____	2,200	22,000	$_____
0003-4	Nitrate Analysis	$_____	2,200	22,000	$_____
0003-5	Ammonium, and water-soluble sodium and potassium	$_____	2,200	22,000	$_____
0003-6a	Organic, elemental, and total carbon (STN)	$_____	2,200	22,000	$_____
0003-6b	Organic, elemental, and total carbon (IMPROVE)	$_____	2,200	22,000	$_____
0003-7	Semi-volatile organic aerosol analysis	$_____	3	30	$_____
0003-8a	Microscopic Analysis	$_____	1	15	$_____
0003-8b	Electron Microscopic Analysis	$_____	1	15	$_____
0003-9	Organic Denuder Refurbishment	$_____	5	50	$_____
0003-10	Nitric Acid Denuder Refurbishment	$_____	150	1,500	$_____
0003-11	Sodium Carbonate Denuder Refurbishment	$_____	300	3,000	$_____
0003-12	5 Year Archive of Samples	$_____	2,360	23,600	$_____

OPTION PERIOD III: JULY 8, 2006 TO JULY 7, 2007

Option Period I Item	Item Description	Unit Price	Minimum Sample Quantity	Maximum Sample Quantity	Total Price (Unit Price X Max. Qty)
0004-1	PM 2.5 Gravimetric Mass	$_____	1,100	22,000	$_____
0004-2	Elemental Analysis by EDXRF	$_____	1,100	22,000	$_____
0004-3	Sulfate Analysis	$_____	1,100	22,000	$_____
0004-4	Nitrate Analysis	$_____	1,100	22,000	$_____
0004-5	Ammonium, and water-soluble sodium and potassium	$_____	1,100	22,000	$_____
0004-6a	Organic, elemental, and total carbon (STN)	$_____	1,100	22,000	$_____
0004-6b	Organic, elemental, and total carbon (IMPROVE)	$_____	1,100	22,000	$_____
0004-7	Semi-volatile organic aerosol analysis	$_____	1	30	$_____

0004-8a	Microscopic Analysis	$_____	1	15	$_____
0004-8b	Electron Microscopic Analysis	$_____	1	15	$_____
0004-9	Organic Denuder Refurbishment	$_____	2	50	$_____
0004-10	Nitric Acid Denuder Refurbishment	$_____	75	1,500	$_____
0004-11	Sodium Carbonate Denuder Refurbishment	$_____	150	3,000	$_____
0004-12	5 Year Archive of Samples	$_____	1,180	23,600	$_____

OPTION PERIOD IV: JULY 8, 2007 TO JULY 7, 2008

Option Period I Item	Item Description	Unit Price	Minimum Sample Quantity	Maximum Sample Quantity	Total Price (Unit Price X Max. Qty)
0005-1	PM 2.5 Gravimetric Mass	$_____	1,100	22,000	$_____
0005-2	Elemental Analysis by EDXRF	$_____	1,100	22,000	$_____
0005-3	Sulfate Analysis	$_____	1,100	22,000	$_____
0005-4	Nitrate Analysis	$_____	1,100	22,000	$_____
0005-5	Ammonium, and water-soluble sodium and potassium	$_____	1,100	22,000	$_____
0005-6a	Organic, elemental, and total carbon (STN)	$_____	1,100	22,000	$_____
0005-6b	Organic, elemental, and total carbon (IMPROVE)	$_____	1,100	22,000	$_____
0005-7	Semi-volatile organic aerosol analysis	$_____	1	30	$_____
0005-8a	Microscopic Analysis	$_____	1	15	$_____
0005-8b	Electron Microscopic Analysis	$_____	1	15	$_____
0005-9	Organic Denuder Refurbishment	$_____	2	50	$_____
0005-10	Nitric Acid Denuder Refurbishment	$_____	75	1,500	$_____
0005-11	Sodium Carbonate Denuder Refurbishment	$_____	150	3,000	$_____
0005-12	5 Year Archive of Samples	$_____	1,180	23,600	$_____

2. The attachment entitled "STATEMENT OF WORK" has been modified. The text is as follows:

STATEMENT OF WORK

ANALYTICAL LABORATORY SUPPORT FOR THE CHEMICAL SPECIATION OF $PM_{2.5}$ FILTER SAMPLES

I. Background and Introduction

On July 18, 1997, the U.S.EPA promulgated the new national Ambient Air Quality Standards (NAAQS) for particulate matter (PM). The regulations are detailed in 40 CFR Parts 50, 53, and 58. The NAAQS apply to the mass

concentration of particles with aerodynamic diameters lower than 2.5 µm ($PM_{2.5}$) and 10µm (PM_{10}). The NAAQS specify:

- Twenty-four hour average $PM_{2.5}$ not to exceed 65µg/m^3 for a three year average of annual 98th percentiles at any population-oriented monitoring site in a Metropolitan Planning Area (MPA).
- Three year annual average $PM_{2.5}$ not to exceed 15µg/m^3 concentrations from a single community-oriented monitoring site or the spatial average of eligible community exposure sites in a MPA.
- Twenty-four hour average PM_{10} not to exceed 150µg/m^3 for a three year average of annual 99th percentiles at any monitoring site in a monitoring area.
- Three-year average PM_{10} not to exceed 50µg /m^3 for three annual average concentrations at any monitoring site in a monitoring area.

The deployment of a new $PM_{2.5}$ monitoring network is a critical component in the national implementation of the new $PM_{2.5}$ NAAQS. The ambient data from this network drives an array of regulatory decisions, ranging from designating areas as attainment or nonattainment, to developing cost-effective control programs and tracking the progress of such programs.

Data derived from the $PM_{2.5}$ monitoring network include both aerosol mass measurements and chemically-resolved or speciated data. Mass measurements are used principally for $PM_{2.5}$ NAAQS comparison purposes in identifying areas that meet or do not meet $PM_{2.5}$ NAAQS, and in supporting designation as attainment or non-attainment. Chemically-resolved data serve the implementation needs associated with developing emission mitigation approaches to reduce ambient aerosol levels. These needs include emission inventory and air quality model evaluation, source attribution analysis, and tracking the success of emission control programs. These resolved chemical measurements also provide support for regional haze assessments.

The *Federal Register* described the initiation of a $PM_{2.5}$ chemical speciation network of approximately 50 Trends sites within the National Air Monitoring Stations (NAMS) for routine speciation monitoring. Twenty-five of the monitors were to be collocated with the Photochemical Assessment Monitoring Stations (PAMS) component of NAMS, with the remaining 25 sites selected in coordination among the EPA, Regional Office Administrators and the States. Speciation samples are collected every three days at the NAMS sites. In addition to the Trends sites, approximately 225 additional speciation monitoring sites have been deployed as part of State and Local Agency Monitoring and Tribal Monitoring Site networks (SLAMS). The sample frequency at these sites vary, depending upon the specific data application requirements developed by the individual States. Typically, these sites sample on a one in six day frequency but Agencies and Tribes can adjust the number of sites and sampling frequencies according to their individual needs. For example, some areas may choose to focus on episodes or specific seasons, such as a winter-time wood smoke problem. Retaining a minimum of 50 core sites for consistency across space and time for long term trends allows other sites to address regional and local issues. EPA does not believe that a single nationwide approach to speciation sampling and analysis is the best approach

everywhere. The target analytes of interest from these samples are similar to those currently measured within the Interagency Monitoring of Protected Visual Environments (IMPROVE) program and consist of an array of cations, anions, carbon, elements, and semi-volatile organic particles. Each series of analytes requires sample collection on the appropriate filter medium to allow chemical analysis with methods of adequate sensitivity The EPA expects that most sites will follow a sampling and analysis program similar to the Trends sites; however, alternative speciation approaches are considered on a case-by-case basis through negotiation with appropriate EPA Regional Offices and OAR Headquarters in Washington, D.C..

Physical and chemical speciation data can be used to support several areas of need which include:

- Using speciation data as input to air quality modeling and emissions inventories evaluations.
- Understanding the effects of atmospheric constituents on visibility impairment and regional haze.
- Using the speciated particulate data to aid in monitoring network design and siting adjustment.
- Aiding in source attribution analyses, trends, and providing data to assess the effectiveness of control and attainment strategies.
- Correlating speciation data with mass concentrations at sites where $PM_{2.5}$ mass and speciation monitors are collocated to obtain additional information about species that contribute to total mass measurements.
- Aiding the interpretation of health studies by evaluating the potential linkage of health effects to $PM_{2.5}$ constituents.

The Federal Reference Method/Federal Equivalent Method (FRM/FEM) $PM_{2.5}$ sampler is not adequate for collecting all aerosols needed for chemical characterization. The design of the FRM/FEM samplers and their deployment in a community-oriented monitoring network are based on the need to produce data comparable with those health studies underlying the development of the $PM_{2.5}$ NAAQS. The FRM, built with many design-specified components, conceptually is similar to samplers used in the health studies supporting the $PM_{2.5}$ NAAQS. However, the FRM/FEM filter collection medium is not adequate for collecting aerosols in a manner needed for the required chemical analyses. Ambient aerosols are complex multi-phase(semivolatile, liquid, solid) mixtures composed of various chemical constituents which vary across particle size ranges. Sampling for these aerosols can be subject to various positive and negative artifacts.

For example, the FRM design with a Teflon® filter does experience loss of volatile constituents (i.e., release of nitric acid vapor from particulate ammonium nitrate), which can be more completely captured by other sampling approaches. Because the FRM/FEM $PM_{2.5}$ samplers do not provide full chemical characterization of ambient aerosols, alternative approaches are used for

speciation sampling. Filters are the most commonly used collection substrates for sampling atmospheric aerosols for measuring composition. Sampling times vary with ambient loadings, sampling rates, substrate blanks, and analytical sensitivities, but typically vary from several hours in urban areas, to a day or more under clean background conditions. While filter samplers are relatively inexpensive, they typically require manual operation. Also the number of filters that must be analyzed in a monitoring network can be large.

To meet the chemical speciation objectives within the National $PM_{2.5}$ Monitoring Network, several sampler designs are available for use within State and Local air monitoring networks. Each design has the capability to collect a $PM_{2.5}$ ambient sample by using multiple filter substrates appropriate for chemical analysis of selected analytes. A list of current speciation sites and sampler types is attached. While this list may be accurate and complete as of the date of the EPA's solicitation for this effort, the specific sites and distribution of samplers will likely change and continuously evolve throughout the life of this contract.

The following is a description of chemical speciation monitor configurations that may be used for both NAMS and non-NAMS sites. Refer to the website at "www.epa.gov/ttn/amtic/files/ambient/pm25/spec/pm25pict.pdf" for schematics and pictures of the various sample types.

a) IMPROVE

Each IMPROVE sampling module consists of an inlet stack; a cyclone to provide particle size cut based on flow rate; filter media for sample collection; a mechanism to provide the proper flow rate for the desired size cutoff; a vacuum pump to produce the flow; and solenoids for exposing two filters. IMPROVE samplers consist of several parallel modules and a common controller. A programmable clock, in one of the filter modules or in a separate module, controls pump and solenoid switching for all filter modules. The pump(s) is housed separately. Each of three modules utilizes a cyclone operating at a flow rate of 22.7 L/min to provide for a cut point of 2.5µm.

One $PM_{2.5}$ module uses a PTFE membrane filter to collect aerosols for mass measurement and subsequent analysis for trace elements. A second module is equipped with a denuder and nylon filter to measure total particulate nitrate, anions and cations. The third module contains two pre-fired quartz-fiber filters in series to measure organic and elemental carbon on the first filter and to assess the extent of organic artifacts on the backup filter.

IMPROVE samplers have historically been used at regional background and transport sites to fulfill State and Local Air Monitoring Stations (SLAMS) requirements. They were developed to quantify PM chemical components that affect visibility at Federal Class I areas that include national parks, national monuments, and wilderness areas.

b) Mass Aerosol Speciation Sampler (MASS)

The MASS consists of two stand-alone samplers. These samplers are identical except the MASS400 has a coated denuder followed by a two stage Teflon® and nylon filter pack, while the MASS450 has a single stage quartz filter pack. On the MASS 400 the air stream travels through the coated denuder which removes HCl, HNO_2, HNO_3, SO_2 , and NH_3. The remaining particulate passes through a 46.2-mm PTFE-filter which is analyzed for mass, elements,

anions and cations. The PTFE filter is followed by a nylon filter which captures volatilized nitrate. The MASS 450 is designed for collection of carbon species. The MASS 450 may be retrofitted with a XAD-4 denuder and a PUF/XAD-4 sorbent trap to collect semi-volatile organic aerosols as the technology develops.

To obtain the fine particulate matter, the sample air inlet particle size separator is as specified in 40 CFR Part 50 Appendix L and identical to the FRM Well Impactor Ninety-six (WINS). This provides an identical cut point and efficiency curve. These samplers use active volumetric flow rate control which is designed to meet FRM specifications and, therefore, has the same accuracy of flow as an FRM sampler. One modification of the inlet is the annular denuder, which is placed between the PM head and WINS inlet.

c) Reference Ambient Air Sampler (RAAS™)

Ambient air is pulled through a wind direction and speed insensitive inlet and through an inert inlet line that is insulated from direct heating by the sun. The inlet has no size selective function. The air then passes through a stainless steel manifold on to AIHL-design cyclone separators which remove coarse particles with diameters larger than 2.5 µm. The cyclone functions reliably without the use of oil or other bounce prevention agents. All inlet, manifold, connector and cyclone parts are fabricated from polytetrafluoroethylene (PTFE)-coated aluminum.

The air stream from the cyclone, containing only fine particles and gases, is split between separate low-volume filter holder assemblies. The flow rate through each filter holder can be changed if a different sampler configuration flow rate is desired for special studies. In normal sampling, the combined flow rate to both filter holder assembles is 24 liters per minute, which is divided into one 16.7 and one 7.3 liter per minute subdivisions.

Fine particles are collected on standard 46.2-mm diameter PTFE filters for mass and subsequent chemical analysis. PTFE filters are used because samples intended for X-ray fluorescence analysis may be placed in a vacuum chamber during analysis leading to the expected loss of volatile aerosol components, thereby making it desirable to use a second PTFE filter for analysis of ionic species.

Particles are also collected on a quartz fiber filter from which carbonaceous species can be measured by thermal optical analysis. If semi-volatile species are to be determined, a diffusion denuder coated with XAD to remove gaseous semi-volatile organics from the incoming air stream and a backup trap using polyurethane foam (PUF) or XAD resin to capture any semi-volatile organic components evaporating from the particulate captured on the filter may be used.

Lastly, a nylon filter is located downstream from a coated diffusion denuder. As in the MASS, the diffusion denuder removes nitric acid vapor and other vapors from the air stream while allowing fine particulate nitrate to pass through the denuder; then the nylon filter captures the fine particulate nitrate. The nylon filter is used because it has a high affinity for nitric acid. The nitrate content of any particulate ammonium nitrate (NH_4NO_3) that dissociates during sampling will be retained by the nylon filter. This filter is analyzed for all cation and anion species.

d) Spiral Ambient Speciation Sampler (SASS™)

This sampler contains parallel sample cassettes with a sharp-cut cyclone inlet. Each cassette has its own $PM_{2.5}$ inlet, denuder (if applicable), and tandem filter holder. The cassettes are mounted in an aspirated radiation shield that maintains the sampler temperature close to ambient. Cassette inlets point downward. The sampling head has independent sampling channels, each operated at a sample flow rate of about 6.0 liters per minute. The cyclone particle separator does not require the use of grease or oil anti-bounce agents.

The denuder is a multi-cell configuration made of coated aluminum. As with the other samplers discussed above, these denuders remove interfering gases but are not designed to be extracted for direct analysis.

The cassettes provided with the sampler can be used in multiple configurations. For the routine speciation trends program, the suggested configuration incorporates a:

- Teflon® filter for mass and trace elements;
- denuder followed by a nylon filter for particulate nitrate and ions; and
- quartz filter for carbon.

Any cassette can be configured with one or two filters or a denuder followed by one or two filters. The filter cassette temperature is monitored and the data logged. The fan aspirated solar radiation shield houses the five individual cassettes and maintains the cassette filter temperature during a sample event to less than 5°C above ambient temperature. A shielded ambient temperature sensor mounted to the control module logs the ambient temperature.

e) Single Channel $PM_{2.5}$ Federal Reference Method (FRM)

Single channel (single inlet assembly and filter medium), FRM samplers are not expected to be routinely used in speciation sampling. A designated FRM or FEM sampler, operated with the appropriate filter media, can be used to collect a sample that may be subsequently analyzed for the targeted chemical species on that filter media. This may be needed in cases where chemical speciation analyses are performed on a Teflon® filter, after gravimetric analyses determined a high fine particulate loading. In the case of a Teflon® filter media, the sample can be analyzed for trace elements. The single channel sampler could also be used with a nylon or quartz filter to collect fine particulate for other targeted chemical species. This may occur on days when the FRM sampler is not scheduled to operate.

The FRM sampler, when used with the appropriate filter type, may be used for chemical speciation. For example, three collocated FRM samplers could be used, one sampler each with a Teflon®, nylon, and quartz filter. Alternatively, a uniquely designed sampler could be used to capture fine particulate on nylon and quartz filters, and a FRM sampler used to capture fine particulate on a Teflon® filter.

f) Rupprecht & Patashnick (R&P) Partisol 2300 Speciation Sampler

The Model 2300 speciation sampler consists of 12 channels that permits up to four sampling trains to be active at one time. All four concurrent

channels may be set to operate at up to 16.7 L/min. Channels can be programmed in groups of 4, 3, 2, or 1 to address a range of applications. This sampler incorporates the ChemCombTM denuder tube/filter pack cartridges. This device is a gas/PM collection of single-module design. The ChemComb hardware can be configured to collect gases on a denuder and capture particulate-related species on one or more 47-mm filters. The ChemComb contains a keyhole PM2.5 impactor, a honeycomb denuder (if needed) and four stages for sampling on filters. Each cartridge can be assembled in various configurations. For the routine speciation trends program, the suggested configuration incorporates one cartridge with a Teflon filter for mass and trace elements; one with a denuder followed by a nylon filter for particulate nitrate and ions; and one with a quartz filter for carbon.

An active volumetric flow control system maintains a constant volumetric flow in each of the sampler's four flow controllers at user-defined flow rates. A microprocessor constantly adjusts the set point of the mass flow controllers in accordance with the latest measurement of ambient temperature and pressure from the instrument's sensors."

II. Objective

The purpose of this contract is to assist State and Local agencies in the operation of $PM_{2.5}$ chemical speciation monitoring networks by providing filter media and analytical support for the analysis of sampler filters for mass, elemental concentrations (Na through Pb), total,organic and elemental carbon, anions (ammonium, sodium, potassium) and cations (sulfate and nitrate). The contractor shall also be required to analyze selected quartz filter samples for semi-volatile organic aerosols. Each sampling site will produce a set of filters for each sampling event that must be analyzed for the complete group of analytes. In addition, the contractor shall provide support services, when ordered, for both optical and electron microscopic analyses of selected filter samples. Electron microscopic analyses may also be required to be coupled with elemental particle analyses when ordered. The contractor shall be responsible for the preparation and refurbishment of denuder devices and adsorbent traps, filter pretreatment and the shipment and receipt of filters, traps, and denuders to and from the field. The contractor is responsible for providing the associated QA, QC, data validation, computation, and reporting of results into Air Information Retrieval Systems/Air Quality System (AQS). Also, the Contractor shall store filters and extract solutions that contain filters from the Speciation Trends Network (STN) and the SLAMs speciation network as described in Section 10 of the Statement of Work. The contractor shall maintain the technical capability to perform the required analytical services issued through delivery orders and maintain an acceptable level of personnel, equipment and related systems.

III. Program Structure

The contractor shall designate a Services Program Manager (SPM) for work performed under this contract. The SPM shall be responsible for the performance of work issued under this contract in accordance with the terms of the contract. The SPM shall provide information on the status and progress of laboratory services requests to the Project Officer (PO) and Delivery Order Project Officer (DOPO) as needed and submit contract-required reports to the PO/DOPO. The SPM shall notify the PO/DOPO regarding any problems encountered

in the performance of work and implement PO/DOPO guidance in the resolution of problems. The SPM shall be responsible for maintaining technical and financial integrity in performance of the requested services, in accordance with EPA-issued delivery orders and contract terms and conditions. Attachment 7 of this solicitation illustrates the sample analysis delivery order process.

Analytical needs requests are initially submitted by a state to the corresponding EPA Regional Speciation Coordinator (RSC). The RSC consolidates all analytical requests received from states within their Region and submits them to the appropriate EPA DOPO. The DOPO, in turn, consolidates analytical requests from several Regions. The Contracting Officer, as necessary will issue delivery orders to the Contractor's Laboratory. The Contract Laboratory prepares the appropriate filter media for sampling and delivers the media to the appropriate state. After sample collection, the state returns the samples along with sampler information to the Contract Laboratory. In addition, selected field quality assurance samples will be collected by the states and submitted to an appropriate EPA Region QA laboratory for analysis. The Contract Laboratory performs analysis, Level 0 and Level 1 data validation on all data sets and enters the data into the AQS. After Level 1 validation and AQS data entry has been completed, the contractor submits the data sets in electronic format to the appropriate state requesting service. After each data set is submitted to the state, the contractor submits copies of the Level 1 data validation checklists and hard copies of the monthly analytical data reports to the appropriate EPA DOPO for review, acceptance, and recommendation for payment to the PO.

Statement of Work

The contractor shall perform work as authorized through the issuance of delivery orders. Attachment 7 of this soliciation illustrates a typical sequence of activities and processes involved with filter preparation, shipment to the field, receipt, analysis, and data acquisition. This flow diagram serves as a reference summary of activities required within the Statement of Work. Depending on the specific speciation sampler design used to collect the samples, there will be some variability in the flow diagram dealing with target analyte/filter media combinations. The contractor shall provide the following:

1. Purchase and presampling treatment of all required filter media;
2. Purchase of any sorbents, reagents, and materials for refurbishing speciation sampler denuders and/or organic sorbent modules;
3. Appropriate shipping containers and shipment of all filter media and refurbished denuders/sorbent traps to the requesting state/local agency, including field blanks and trip blanks; Preparation, shipment, and receipt/refurbishment of all sample modules.
4. Sample analysis and analyses of all laboratory quality control samples, blanks, calibration standards and performance evaluation samples;
5. All sampling and analysis data documentation including: chain of custody forms, sample analysis worksheets, Level 0 and Level 1 data validation checklists, and monthly and semi-annual data summary reports. All data validated through Level 1 shall be reported in both electronic and hard copy format and include data entry in AQS

The contractor shall perform work as delinated in the following performance areas:

Laboratory Analysis

1. PM2.5 Gravimetric Mass.

The contractor's responsibilities shall include, but not necessarily be limited to:

a) Purchase and prepare all suitable filter media for each speciation sampling system.

b) Pre-weigh Teflon® filters prior to sending to sites for $PM_{2.5}$ mass and chemical elements sample collection; establish laboratory blanks (10% of filters will be blanks).

c) Post-weigh Teflon® filters upon receipt and report gravimetric $PM_{2.5}$ mass.

d) The weight of $PM_{2.5}$ as determined on the Teflon® filters shall be obtained using the procedures outlined in EPA's document "QualityAssurance Guidance Document 2.12: Monitoring $PM_{2.5}$ in Ambient Air Using Designated Reference or Class I Equivalent Methods". This document can be found on the following web site: " http://www.epa.gov/ttn/amtic/amticpm.html".

2. Elemental Analysis by EDXRF.

The contractor shall perform non-destructive elemental analysis of all Teflon® filters by x-ray energy dispersive x-ray fluorescence spectroscopy (EDXRF).

a) Elements to be routinely included in the analysis are shown in the table indicated below.

b) Sensitivities and detection limits shall be indicated for each of the above listed elements. However, special consideration will be given to sensitivity levels of the following elements:

Al, Si, Cl, K, Ca, V, Fe, Ni, Cu, Zn, As, Se, Br, and Pb.

c) Matrix corrections for all particle size and loading effects shall be accounted for.

d) All samples shall be stored and archived in a way that will not allow contamination of filter media at detectable levels. Detectable levels are defined to be consistent with the sensitivity of the proposed analysis technique.

Elements to be Measured by EDXRF

ELEMENTS		
Sodium	Nickel	Tin
Magnesium	Copper	Antimony
Aluminum	Zinc	Cesium
Silicon	Gallium	Barium
Phosphorous	Arsenic	Lanthanum
Sulfur	Selenium	Cerium
Chlorine	Bromine	Samarium
Potassium	Rubidium	Europium
Calcium	Strontium	Terbium
Scandium	Yttrium	Hafnium
Titanium	Zirconium	Tantalum
Vanadium	Niobium	Wolfram
Chromium	Molybdenum	Iridium
Manganese	Silver	Gold
Iron	Cadmium	Lead
Cobalt	Indium	

3. Sulfate Analysis

The contractor shall perform analysis of nylon and/or Teflon® filters, as appropriate, for sulfate ions.

a) The contractor shall purchase nylon filters and ship filters to and from the field. These filters shall include laboratory blanks, field blanks, and quality assurance filters to be analyzed in addition to the field samples.

b) The contractor shall extract sulfate ions from all filters using a standard method specified by the Standard Operating Procedures (SOP) that is shown to be quantitatively reproducible and with analyte recoveries of at least 97% efficient for filters analyzed in the contractor's laboratory.

c) The contractor shall analyze the extracted solutions for sulfate ions using standard methods and ion chromatography. Such analyses shall include extracts from blanks as well as actual field samples, and shall be supported by quality control analyses including replicate analyses in accordance with the frequency and level of quality control outlined in the contractor’s technical proposal.

4. Nitrate Analysis

The contractor shall perform analysis of nylon and/or Teflon® filters, as appropriate, for nitrate ions.

a) The contractor shall purchase nylon filters and ship filters to and from the field. These filters shall include laboratory blanks, field blanks, and quality assurance filters to be analyzed in addition to the field samples.

b) The contractor shall extract nitrate ions from all filters using a standard method specified by the SOP that is shown to be quantitatively reproducible and with analyte recoveries of at least 97% efficient for filters analyzed in the contractor's laboratory.

c) The contractor shall analyze the extracted solutions for nitrate ions using standard methods and ion chromatography. Such analyses shall include extracts from blanks as well as actual field samples, and shall be supported by quality control analyses including replicate analyses in accordance with the frequency and level of quality control outlined in the contractor’s technical proposal.

5. Ammonium, and water soluble sodium and potassium

The contractor shall analyze the nylon or Teflon® filter, as appropriate for ammonium, sodium, and potassium ions.

a) The contractor shall extract ammonium, sodium, and potassium ions from nylon or Teflon® filters, as appropriate, using a standard method specified by the SOP that is shown to be quantitatively reproducible and at least 97% efficient for filters analyzed in the contractor’s laboratory.

b) The contractor will analyze the extracted solutions for ammonium, sodium, and potassium ions using standard methods and ion chromatography. Such analyses shall include extracts from blanks as well as actual field samples, and shall be supported by quality control analyses including replicate analyses in accordance with the frequency and level of quality control as outlined in the contractor’s technical proposal.

6. Total, organic, and elemental carbon

The contractor shall analyze a portion of the quartz fiber filter for total, elemental, and organic carbon.

a) The contractor shall purchase and prefire quartz filters and ship the filters to and from the field. The contractor shall include laboratory blanks, field blanks, and quality assurance filters to be analyzed in addition to the field samples.

b) The contractor shall analyze each quartz filter for evolved carbon over the temperature ranges specified in the Standard Operating Procedures. The contractor shall provide for the analysis of filters using the IMPROVE method as described by the SOP provided on the IMPROVE web site at: "http://vista.cira.colostate.edu/improve/Publications/IMPROVE_SOPs.htm" and provide for the analysis of filters using the STN method as described by the SOP provided at: "http://www.epa.gov/narel/sops/sop_pm2.5_carbon_rev1.pdf"

The contractor shall be prepared to provide either or both the IMPROVE and STN method of carbon analysis. The contractor shall also analyze laboratory blanks, trip blanks, field blanks and backup filters using the standard procedures in accordance with the frequency and level of quality control outlined in the contractor's technical proposal. The contractor shall separate the carbon components into subgroups according to the temperature of combustion.

7. Semi-volatile organic aerosol analysis

The contractor shall analyze selected quartz fiber or teflon filters and back-up sorbent traps for semi-volatile organic aerosol compounds using an extraction procedure which can accommodate multiple filters. In instances where multiple filters are combined for analyses the contractor will be reimbursed for only one unit.

a) The contractor shall extract semi-volatile organic aerosol compounds from the filters and back up sorbent traps. Target analytes to be quantitated for routine analysis are given in the table below. When requested, several filters may be combined for extraction to yield a more concentrated extract solution.

b) The contractor shall analyze the extracts for semi-volatile organic aerosol compounds using GC/MS methodology as described in Schauer et al. (Reference: Paper entitled "Source Apportionment of Airborne Particulate Matter Using Organic Compounds as Tracers", *Atmospheric Environment*, Vol. 30, No. 22, pp. 3837-3855, 1996). Such analyses shall include extracts from blanks as well as actual field samples, and shall be supported by quality control analyses including replicate analyses.

c) The samples shall be extracted and stored by the contractor in solution form for at least six months and up to five years for possible reanalysis, if requested by EPA.

List of Target Organic Compounds for Quantitation by GC/MS	
n-Alkanes	n-Alkenoic acids
n-Tricosane	cis-9-n-Octadecenoic acid
n-Tetracosane	Aldehydes

n-Pentcosane	Nonanal
n-Hexacosane	Wood smoke markers
n-Heptacosane	8,15-Pimaradien-18-oic acid
n-Octacosane	Pimaric acid
n-Nonacosane	Isopimaric acid
n-Triacontane	Retene
n-Hentriacontane	Polycyclic aromatic hydrocarbons
iso- and anteiso-Alkanes	Benzo[k]fluoranthene
anteiso-Triacontane	Benzo[b]fluoranthene
iso-Hentriacontane	Benzo[e]pyrene
anteiso-Hentriacontane	Indeno[1,2,3-cd]pyrene
iso-Dotriacontane	Indeno[1,2,3-cd]fluoranthene
anteiso-Dotriacontane	Benzo[ghi]perylene
iso-Tritriacontane	Coronene
8,15-Pimaradien-18-oic acid	PAH ketones and quinones
Pimaric acid	7H-Benz[de]anthracen-7-one
Isopimaric acid	Benz[a]anthracene-7,12-dione
n-Dotriacontane	Benzo[cd]pyren-6-one
n-Tritriacontane	
n-Tetratriacontane	
Hopanes and steranes	
20S&R-5α(H),14ß(H),17ß(H)-Cholestanes	
20R-5α (H),14α(H),17α(H)-Cholestane	
20S&R-5α(H),14ß(H),17ß(H)-Ergostanes	
20S&R-5α(H),14ß(H),17ß(H)-Sitostanes	
22,29.30-Trisnorneohopane	
17α(H),21ß(H)-29-Norhopane	
17α(H),21ß(H)-Hopane	
22S-17α(H),21ß(H)-30-Homohopane	

22R-17α(H),21ß(H)-30-Homohopane 22S-17α(H),21ß(H)-30-Bishomohopane	

8. Microscopic analysis

Provide support for microscopic analysis of particles. EPA has need to characterize $PM_{2.5}$ samples beyond routine elemental analysis. The contractor shall have the capability to perform scanning electron microscopic analysis coupled with elemental analysis of $PM_{2.5}$ particles.

9. Organic, Nitric Acid and Sodium Carbonate denuder refurbishment

The contractor shall provide support to the operation and use of denuders. The contractor shall be responsible for obtaining sampler denuders from those State and Local agencies who employ speciation samplers so-equipped. The contractor shall be responsible for obtaining and coating the denuders, as well as shipping the denuders to the State and Local agencies. The denuders may include designs for the removal of gaseous nitric acid and semi-volatile organic vapors.

The analytical methods to be used for the target analytes identified are summarized in following table. Copies of the relevant SOPs and/or journal references are an attachment to the solicitation.

Analytical Methods for Target Analytes of Interest	
PM2.5 mass	Gravimetry
Trace elements	Energy dispersive XRF
Sulfate and nitrate	Ion chromatography
Ammonium, sodium and potassium ions	Ion chromatography
Organic, elemental, and carbonate carbon	Thermal-optical analysis
Semi-volatile organic aerosols	Gas chromatography/mass spectroscopy

FILTER MEDIA

The selection of filter media for the requested sample analyses can vary with the design of the speciation sampler being used by the requesting state or local agency. For the purposes of this solicitation, the table below identifies the filter media to be used for the target analytes of interest for four available speciation samplers.

Target Analytes Associated with Filter Media and Speciation Sampler Design			
Sampler Design	**Teflon®**	**Nylon**	**Quartz**
IMPROVE	mass, elements	$SO_4^=$, NO_3^-, NH_4^+, Na^+, K^+	carbon species, semi-volatile organic aerosols
Met One SASS	mass, elements	$SO_4^=$, NO_3^-, NH_4^+, Na^+, K^+	carbon species, semi-volatile organic aerosols
Andersen RAAS	mass, elements	$SO_4^=$, NO_3^-, NH_4^+, Na^+, K^+	carbon species, semi-volatile organic aerosols
URG MASS400/MASS 450	mass, elements,$SO_4^=$, NO_3^-, NH_4^+, Na^+, K^+	volatile NO_3^-	carbon species, semi-volatile organic aerosols

10. Filter Archiving. EPA is in the process of analyzing the storage and archive needs of the speciation network.

a) It is anticipated that the Contractor shall store all filters and extract solutions that contain filters from the Speciation Trends Network (STN) and the SLAMs speciation network for the duration of the contract. Also, the contractor shall store all filters from the STN and SLAMS temporarily archived under Contract 68-D-99-013 for the period January 2003 through July 2003. However, the specific sites will be designated by delivery order. The facility shall be designed to store quartz filters at -15°C or below and teflon and nylon filter extracts at 0°C to 4°C and shall be serviced with back up power generation capability.

b) The contractor shall provide and operate a cataloging and physical storage system to facilitate rapid and accurate retrieval of filters upon request by EPA. EPA expects a computerized inventory system that may be transferred to EPA or to another curator at the conclusion of the contract. Consequently it should be designed and programmed with commercially available, upgradable and supportable software, e.g. Microsoft Excel. EPA will inspect and audit the inventory and the facility twice per year.

c) The contractor shall provide storage and archival of all sample extracts and filter media for a period of up to six months following sample analyses and five years for filters from the Speciation Trends Network (STN) and the SLAMs speciation network

11. EPA will establish and fund a shipping account which will be utilized by the contractor for sample shipments to and from the field. For any damage occurring in the field, it will be the responsibility of the state agency for repairing or replacing any damaged denuder tubes. For any damage occuring in

the lab, it will be the responsibility of the contractor for repairing or replacing any damaged denuder tubes. Any breakage occurring during shipping will be resolved by the contractor with the shipping company.

3. The attachment entitled "QUALITY ASSURANCE SURVEILLANCE PLAN" has been modified. The text is as follows:

QUALITY ASSURANCE SURVEILLANCE PLAN
Chemical Speciation of PM2.5 Filter Samples

Task Area	Performance Requirement /Desired Outcome	Performance Standard	Measurement Method	Acceptable Quality Level	Contractor Incentives/Dis-Incentives
Sample Analysis and Reporting	Samples are analyzed and reported in accordance with approved Quality Assurance Project Plan (QAPP), SOP's and Quality Management Plan	Data is accurate and timely	DOPOs will review the data validation checklist within the monthly report. Bi-Annual Performance Audits Annual Systems Audits DOPOs will notify the Project Officer when the report is late	At least 95% of samples each quarter have been handled and analyzed in accordance with QAPP and SOP's.	If acceptable data quality is not achieved, the contractor must prepare and submit a remediation plan within 15 days after notification For every 10 calendar days late, a penalty of 20% of the line item price will be deducted, unless the delay was solely the Governments responsibility Address timeliness and quality of work in annual past performance evaluation (PPE)

QUALITY ASSURANCE SURVEILLANCE PLAN
Chemical Speciation of PM2.5 Filter Samples

Task Area	**Performance Requirement /Desired Outcome**	**Performance Standard**	**Measurement Method**	**Acceptable Quality Level**	**Contractor Incentives/Dis-Incentives**
Electronic Data Entry into AQS	Data is entered into AQS in accordance with SOP	Data is entered within **70 days after submittal of data to the DOPO/TOPO**	Contractor shall notify the DOPOs, by email, when batch is entered into AQS.	100% of the data is entered within the time frame set forth in attachment 7 of the contract	For every 10 calendar days late, a penalty of 20% of the line item price will be deducted, unless the delay was solely the Government's responsibility Address timeliness and quality of work in annual past performance evaluation (PPE)
Archive of Filters	Filters are archived in accordance with SOP.	Filters will be stored at a constant temperature of **-15 degrees C or below; teflon and nylon filter extracts at 0 degrees C to 4 degrees C.** Filters can be retrieved within 24 hours	Bi-annual inspection of inventory and storage facility by the DOPO/TOPO	Filters should remain at +/-2 degrees 0 degree F. Filters can be retrieved within 24 hours of request.	Address quality of storage in annual PPE